

## CLAIMS

What is claimed is:

1. A method for preserving data in a data storage system, the method comprising:  
receiving a command to preserve data in the data storage system;  
executing a first input and output (I/O) process in the data storage system existing at a  
selected time relative to the command; and  
executing a second I/O process in the data storage system which begins after the  
selected time, the second I/O process being capable of executing while the first  
I/O process is executing, wherein the second I/O process is capable of  
accessing the same data, in the data processing system, as the first I/O process.
2. The method of claim 1, wherein the selected time is when the command is received and  
the first I/O process is being executed at the selected time.
3. The method of claim 1, wherein the first I/O process is being executed on a first storage  
volume and the second I/O process is being executed on a second storage volume.
4. The method of claim 1, further comprising acquiring a lock from a lock mechanism to  
protect a storage location being replicated, the lock mechanism being maintained  
independent of a first and second storage volumes.
5. The method of claim 4, further comprising:  
acquiring the lock after receiving the command; and  
releasing the lock after the second I/O process is completed.

6. The method of claim 5, wherein the locks are not backed up during a backup operation.
7. The method of claim 1, further comprising creating a second storage volume based on a first storage volume.
8. A machine-readable medium having executable code to cause a machine to perform a method for preserving data in a data storage system, the method comprising:
  - receiving a command to preserve data in the data storage system;
  - executing a first input and output (I/O) process in the data storage system existing at a selected time relative to the command; and
  - executing a second I/O process in the data storage system which begins after the selected time, the second I/O process being capable of executing while the first I/O process is executing, wherein the second I/O process is capable of accessing the same data, in the data processing system, as the first I/O process.
9. The machine-readable medium of claim 8, wherein the selected time is when the command is received and the first I/O process is being executed at the selected time.
10. The machine-readable medium of claim 8, wherein the first I/O process is being executed on a first storage volume and the second I/O process is being executed on a second storage volume.
11. The machine-readable medium of claim 8, wherein the method further comprises acquiring a lock from a lock mechanism to protect a storage location being replicated,

the lock mechanism being maintained independent of a first and second storage volumes.

12. The machine-readable medium of claim 11, wherein the method further comprises:  
acquiring the lock after receiving the command; and  
releasing the lock after the second I/O process is completed.
13. The machine-readable medium of claim 12, wherein the locks are not backed up during a backup operation.
14. The machine-readable medium of claim 8, wherein the method further comprises creating a second storage volume based on a first storage volume.
15. An apparatus for preserving data in a data storage system, comprising:  
means for receiving a command to preserve data in the data storage system;  
means for executing a first input and output (I/O) process in the data storage system existing at a selected time relative to the command; and  
means for executing a second I/O process in the data storage system which begins after the selected time, the second I/O process being capable of executing while the first I/O process is executing, wherein the second I/O process is capable of accessing the same data, in the data processing system, as the first I/O process.
16. The apparatus of claim 15, wherein the selected time is when the command is received and the first I/O process is being executed at the selected time.

17. The apparatus of claim 15, wherein the first I/O process is being executed on a first storage volume and the second I/O process is being executed on a second storage volume.
18. The apparatus of claim 15, further comprising means for acquiring a lock from a lock mechanism to protect a storage location being replicated, the lock mechanism being maintained independent of a first and second storage volumes.
19. The apparatus of claim 18, further comprising:
  - means for acquiring the lock after receiving the command; and
  - means for releasing the lock after the second I/O process is completed.
20. The apparatus of claim 19, wherein the locks are not backed up during a backup operation.
21. The apparatus of claim 15, further comprising means for creating a second storage volume based on a first storage volume.
22. A data storage system, comprising:
  - a processing system; and
  - a memory coupled to the processing system, the memory storing instructions, which when executed by the processing system, cause the processing system to perform the operations of:
    - receiving a command to preserve data in the data storage system;
    - executing a first input and output (I/O) process in the data storage system existing at a selected time relative to the command; and

executing a second I/O process in the data storage system which begins after the selected time, the second I/O process being capable of executing while the first I/O process is executing, wherein the second I/O process is capable of accessing the same data, in the data processing system, as the first I/O process.

23. The method of claim 3, further comprising:  
obtaining a snapshot of the first storage volume; and  
creating the second storage volume based on the snapshot of the first storage volume.
24. The method of claim 23, further comprising:  
acquiring a lock from a lock mechanism;  
writing first data associated with the first I/O process to the first storage volume;  
replicating, substantially concurrently, the first data to the second storage volume; and  
releasing the lock.
25. The method of claim 24, further comprising:  
acquiring the lock from the lock mechanism;  
writing second data associated with the second I/O process to the second storage volume without replicating the second data to the first storage volume; and  
releasing the lock.
26. The method of claim 25, further comprising:  
deactivating the first storage volume after the first I/O process is completed; and  
performing a backup operation on the first storage volume.

27. The machine readable medium of claim 10, wherein the method further comprises:  
obtaining a snapshot of the first storage volume; and  
creating the second storage volume based on the snapshot of the first storage volume.
28. The machine readable medium of claim 27, wherein the method further comprises:  
acquiring a lock from a lock mechanism;  
writing first data associated with the first I/O process to the first storage volume;  
replicating, substantially concurrently, the first data to the second storage volume; and  
releasing the lock.
29. The machine readable medium of claim 28, wherein the method further comprises:  
acquiring the lock from the lock mechanism;  
writing second data associated with the second I/O process to the second storage  
volume without replicating the second data to the first storage volume; and  
releasing the lock.
30. The machine readable medium of claim 29, wherein the method further comprises:  
deactivating the first storage volume after the first I/O process is completed; and  
performing a backup operation on the first storage volume.
31. The apparatus of claim 17, further comprising:  
means for obtaining a snapshot of the first storage volume; and  
means for creating the second storage volume based on the snapshot of the first storage  
volume.
32. The apparatus of claim 31, further comprising:

means for acquiring a lock from a lock mechanism;  
means for writing first data associated with the first I/O process to the first storage volume;  
means for replicating, substantially concurrently, the first data to the second storage volume; and  
means for releasing the lock.

33. The apparatus of claim 32, further comprising:  
means for acquiring the lock from the lock mechanism;  
means for writing second data associated with the second I/O process to the second storage volume without replicating the second data to the first storage volume;  
and  
means for releasing the lock.

34. The apparatus of claim 33, further comprising:  
means for deactivating the first storage volume after the first I/O process is completed;  
and  
means for performing a backup operation on the first storage volume.